

Amendments to the Claims

Please amend Claims 1, 2, 7-11, 14, 17, 20 and 21 to read as follows.

1. (Currently amended) A printing apparatus for printing on a printing medium by a printhead, the apparatus comprising:

scanning means, on which ~~said~~ the printhead is mounted, for reciprocally moving ~~said~~ the printhead in a first direction;

conveyance means for conveying ~~said printhead~~ the printing medium in a second direction different from the first direction;

first detection means for detecting a position of said scanning means with respect to the first direction;

first filter means for filtering out high-frequency noise overlaying a first detection signal generated by said first detection means according to conditions that reflect a movement condition of said scanning means; and

printing control means for printing by controlling ~~said~~ the printhead based on the first detection signal from which the noise has been filtered out by said first filter means.

2. (Currently amended) The apparatus according to claim 1, wherein said scanning means includes a carriage motor for moving a carriage on which ~~said~~ the printhead is mounted.

3. (Original) The apparatus according to claim 2, wherein said first detection means includes:

a scale, provided along the first direction, along which transparent and opaque regions are alternately provided at predetermined intervals; and

an encoder, provided on said carriage, that irradiates light onto the scale and generates an encoder signal as the first detection signal by detecting light that passes through any one of the transparent regions.

4. (Original) The apparatus according to claim 3, wherein said first filter means is a low pass filter (LPF) that filters out high-frequency noise overlaying the encoder signal.

5. (Original) The apparatus according to claim 4, wherein said LPF includes:

an edge detector for detecting a leading edge and a trailing edge of the encoder signal;

a mask signal generator for generating a mask signal of a predetermined length after detecting an edge by the edge detector; and

a level holder for holding a signal level of the encoder signal during a period of generating the mask signal.

6. (Original) The apparatus according to claim 5, wherein said LPF has a first operating mode for operating so that the mask signal generator generates the mask signal of a predetermined time length.

7. (Currently amended) The apparatus according to claim 6, wherein said LPF further ~~includes~~; includes a measuring unit for measuring a cycle of the encoder signal from the leading edge and the trailing edge of the encoder signal detected by the edge ~~detector~~; detector, and has a second mode for operating so as to generate a mask signal of a length that is $1/n$ times ~~as~~ the cycle of the encoder signal measured by the measuring unit.

8. (Currently amended) The apparatus according to claim 7, ~~wherein~~; wherein said encoder generates at least a first encoder signal and a second encoder signal of different ~~phases~~; phases, and said LPF further ~~comprises~~ has a third operating mode for operating so as to generate the mask signal after the edge detector detects a change in signal level of the first encoder signal and until a signal level of the second encoder signal changes.

9. (Currently amended) The apparatus according to claim 8, wherein said printing control means operates said LPF in the first operating mode while the carriage begins to accelerate from a state of rest to a time at which a change in a velocity of the carriage becomes stable,

said printing control means operates said LPF in either the second mode or the third mode when the change in the velocity of the carriage becomes stable, the carriage continues to further accelerate until the carriage reaches a state of constant velocity movement, and up to a region in which the carriage begins to decelerate from the state of the constant velocity movement and such change in velocity becomes unstable, and

said printing control ~~unit~~ means operates said LPF in the first operating mode after the carriage reaches the region in which such change in velocity becomes unstable until the carriage stops.

10. (Currently amended) The apparatus according to claim 1, wherein ~~said~~ the printhead is an inkjet printhead that prints by discharging ink.

11. (Currently amended) The apparatus according to claim ~~1~~ 10, wherein ~~said~~ the inkjet printhead is provided with an electrothermal transducer for generating heat energy to be applied to ink so as to discharge the ink by utilizing the heat energy.

12. (Original) The apparatus according to claim 1, further comprising:
second detection means for detecting a position of the printing medium with respect to the second direction;

second filter means for filtering out noise overlaying a second detection signal generated by said second detection means according to conditions which reflect a conveyance state by said conveyance means; and

conveyance control means for performing conveyance control of the printing medium, based on the second detection signal from which the noise has been filtered out by said second filter means.

13. (Original) The apparatus according to claim 12, wherein said conveyance means includes a conveyance roller and conveyance gear for conveying the printing medium.

14. (Currently amended) The apparatus according to claim ~~12~~ 13, wherein the said second detection means includes:

a disk-like scale, provided on the conveyance gear, along which transparent and opaque regions are alternately provided at predetermined intervals; and

a rotary encoder, provided near the conveyance gear, that irradiates light onto the scale and generates an encoder signal as the second detection signal by detecting light that passes through any one of the transparent regions.

15. (Original) The apparatus according to claim 12, wherein said conveyance means includes a paper feed roller and conveyance gear for conveying the printing medium.

16. (Original) The apparatus according to claim 12, wherein said conveyance means includes a paper discharge roller and conveyance gear for conveying the printing medium.

17. (Currently amended) The apparatus according to claim ~~12~~ 14, wherein said second filter means is a low pass filter (LPF) that filters out high-frequency noise overlaying the encoder signal.

18. (Original) The apparatus according to claim 17, wherein said LPF includes:

an edge detector for detecting a leading edge and a trailing edge of the encoder signal;

a mask signal generator for generating a mask signal of a predetermined length after detecting an edge by the edge detector; and

a level holder for holding a signal level of the encoder signal during a period of generating the mask signal.

19. (Original) The apparatus according to claim 18, wherein said LPF has a first operating mode for operating so that the mask signal generator generates the mask signal of a predetermined time length.

20. (Currently amended) The apparatus according to claim 19, wherein said LPF further ~~includes~~; includes a measuring unit for measuring a cycle of the encoder signal from the leading edge and the trailing edge of the encoder signal detected by the edge ~~detector~~; detector, and has a second operating mode for operating so as to generate a mask signal of a length that is $1/n$ times ~~as~~ the cycle of the encoder signal measured by the measuring unit.

21. (Currently amended) The apparatus according to claim 20, ~~wherein~~; wherein said rotary encoder generates at least a first encoder signal and a second encoder signal of different ~~phases~~; phases, and said LPF further ~~comprises~~ has a third operating mode for operating so as to generate the mask signal after the edge detector detects a change in signal level of the first encoder signal and until a signal level of the second encoder signal changes.